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MICROCOMPUTERS FOR LEARNERS

Workshop Activity Guide

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Workshop Activity Guide

MICROCOMPUTERS FOR LEARNERS

The *Workshop Activity Guide* to accompany the video series **Microcomputers for Learners** was written by David Bouyea, with contributions by Arthur Heller.

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Introduction

Welcome to **Microcomputers for Learners**, a series of programs for teachers who have limited, or no, knowledge of computers. The series invites you to get involved and become aware of the tasks that computers can perform for you. The series is designed to help teachers explore the potential of microcomputers as productivity tools for classroom applications.

Advances in computer technology have made the computer more accessible for the classroom teacher at all levels. This series provides the opportunity of seeing and hearing teachers, experts and students use and discuss the computer and its implementation in education.

Project Advisory Committee

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Information for Workshop Leaders

There are many ways to organize a workshop. The workshop activity booklet is a flexible resource which may be used individually or by participants in a workshop. As well, the suggested activities are a useful way to use the videotapes as the centerpiece of a group workshop. As leader, you may have activities you would like to see used as part of the learning package. Each participant should have access to a computer in order to make optimum use of the video programs and workshop guide.

It is important to preview the series and identify the software programs used, so that you can locate copies of them. The workshop activities are directly related to the videotaped programs, so each participant would benefit from being able to use the software programs. Other series on the subject of microcomputers are available through ACCESS NETWORK. Some of these may be useful to you, so preview these series (some of which are listed in the Suggested Resources section at the end of this book) and select appropriate sections which have concrete application to the workshop you are leading.

This workshop package is based on the following assumptions.

1. Computers will not be regarded as "aids" to teaching and learning. So long as computers are regarded this way they will fail to be used to full potential. As with various new technologies (teaching "aids") of the past, it is difficult to fit the computer into the lockstep process of traditional school programs and practices. Computers work best when they are used in non-traditional settings, or when school practices are set up to take special advantage of the technology's potential.

2. The real stumbling blocks to any form of innovative technology occur at the point at which technologies or media begin to be integrated into the overall teaching process–teaching regular subject matter with and through media or technology.

Using the Workshop Package

Purpose

The workshop guide and the video programs can be used to:

- gain awareness and an increased knowledge of the potential of microcomputers for educational applications;
- investigate the role computers play in Alberta's "leading edge" classrooms;
- learn practical ideas and techniques for implementing microcomputers in schools;
- assist workshop leaders in planning and preparing inservice workshops;
- provide opportunities for teachers to interact with the materials and with colleagues in a workshop setting.

Notes to workshop leaders:

- Preview this handbook and attempt to locate the software used/or something very similar. Screen the entire video program that fits your needs, then select the segments you plan to use in your presentation. Do not feel compelled to show the entire program, and also plan to stop or rewind the tape at any point for discussion, emphasis, reinforcement or review.
- Run the workshop in a lab, or somewhere where computers are readily accessible. Emphasize "hands-on." Where possible, also have appropriate software on display.
- Add your own activities. This is only a catalyst document.
- Provide time to review specific sections of the program. Each Workshop provides a Content Map, to which you should add the appropriate tape counter numbers for the videotape playback unit you are using.
- Remind participants that some questions (asked early in the series) may be answered more specifically in later programs, for example, printers.

Series Description

This videotape series investigates the role computers play in Alberta's classrooms, and surveys educators' ideas and opinions regarding the potential of the technology for teaching. In each program, practical ideas for school applications are presented, the Handyman deals with hardware-related topics, an expert discusses basic computer concepts, and a software package is reviewed.

Each program is approximately 30 minutes long.

Program Descriptions

Program 1

This is an introduction to the "new" computer literacy. The program also shows how to assemble a computer system, gives a keyboarding demonstration, and presents a software package for junior high science.

Program 2

Teachers discuss how to organize a classroom for using the computer as an instructional tool. The Handyman looks at the disk drive and how it works. Dr. Gene Romaniuk explains computer memory, and an interactive text-adventure game recommended for language arts is reviewed.

Program 3

A visit to Apple Centres for Innovation, where teachers explore the potential of educational computing, is featured. The Handyman shows how to use and care for a mouse peripheral. Word processing is introduced, and **Superkey,** a keyboarding package, is reviewed.

Program 4

The program examines a planning model for integrating the computer into the classroom. Different types of monitors are highlighted. A discussion of computer-assisted instruction is followed by a review of *Word Perfect*, a word processing package.

Program 5

The program begins with a discussion of how computers can help relieve teachers of mundane classroom tasks. The IBM Personal System 2 is featured, followed by a demonstration of databases. A telecommunications program for elementary school children is reviewed.

Program 6

The innovative IBM Othello Project is featured and several printers demonstrated. Dr. Gene Romaniuk explains how computers can translate ideas into tangible classroom applications. A classroom teacher reviews *Mathematics Activities Courseware.*

Program 7

Educators discuss the topic of educational software evaluation, and John Chalmers demonstrates laser printers. Disk operating systems are explored and *Bank Street Writer 3*, an elementary word processor, is evaluated.

Program 8

This program examines the problem of software piracy. Then the Handyman demonstrates how one printer can be shared by several computers, and spreadsheets are introduced. *The Factory*, a problem-solving software package, is reviewed.

Program 9

Microcomputers for Learners tours the Canadian Centre for Learning Systems in Calgary. The modem is demonstrated and the types of telecommunications software available for it discussed. The software reviewer discusses the *Early Learning Series* published by the Minnesota Educational Computing Corporation.

Program 10

This program surveys how computers are being integrated into the classroom. The Handyman explains local area networks, and computer graphics are demonstrated by the guest expert. *Kidtalk*, a talking word processor for elementary school students, is reviewed.

Program 11

The program explores the use of computers in special education settings. The discussion of local area networks continues, and the concept of integrated software is introduced. *The Other Side*, educational software for use in senior high school social studies, is reviewed.

Program 12

The Saanich Project, a joint venture between private industry and the education sector in British Columbia, is highlighted. The LCD projection system for computers is demonstrated. Desktop publishing is introduced, and a review of *Appleworks*, a popular integrated software program, is reviewed.

Program 13

The program features the use of computers to promote learning in early childhood classrooms. Digital scanners are demonstrated, and Dr. Gene Romaniuk looks at LOGO. *PageMaker*, a desktop publishing package, is reviewed.

The Workshop Activity Guide

The *Guide* is primarily intended to assist a workshop leader in planning inservice sessions for school teaching staff in order to stimulate an open-minded, positive climate regarding the use of microcomputers in education. Positive attitudes can be fostered by focusing workshop sessions on the practical ideas and suggestions for school planning and classroom applications that are presented in each video program.

Structure of the Workshop Agenda

1. Introductory Activities
   - climate building
   - focusing
2. Active Viewing
   - key concepts
3. After Viewing
   - interaction with content and colleagues
   - school/classroom applications
4. Goal-setting
   - make specific plans

Workshop Length

1. A minimum length of 2 1/2 hours is recommended.
2. Actual video viewing time should not exceed one third of the total workshop time, since adequate opportunity for participants to interact is essential to the success of the workshop.
3. The length of time spent on each section of the workshop should be based upon the needs and interests of the participants.

Notes on the workshop design:

Key concepts are listed for each program and can be used to focus on desired learning outcomes.

Introductory activities provide opportunity to welcome participants to a session, establish a climate of open-mindness (questions to ponder) while exploring needs, and introduce the video segments to be viewed.

Viewing: Each program is approximately 30 minutes in length. Pre-screen the entire video program(s) you are planning to use, then select the segments you plan to use in your presentation. To ensure optimum viewing, consult Getting the Most from a Video Presentation, at the end of this *Guide.*

After viewing, review the information presented in the video and points discussed earlier. Emphasis should be on maximum interaction of each participant. School/classroom applications should be discussed in specific terms.

Goal setting: Participants are encouraged to set individual and staff goals relative to becoming computer literate and developing practical plans for the use of microcomputers for learning.

Workshop #1

Key Concepts

1. Computer Literacy
2. Strategies for teaching keyboarding
3. Computer hardware systems

Program Synopsis

In this program, computer literacy is discussed, and you'll learn how to put together a complete computer system. Basic keyboarding skills will help you get on the fast track to working with your computer. And you'll have a look at a mathematics program that's getting high marks from teachers using computer assisted instruction in their classrooms.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:21	
Computer Literacy Redefined	1:21	5:49	
Tips from the Handyman: Putting a System Together	7:10	7:24	
Keyboarding	14:34	5:55	
Software Review: *Science Toolkit*	20:29	7:06	
Review	27:35	1:15	

Some Questions to Ponder Before Viewing

1. How much do you honestly know about computers?
2. What questions do you want answered?
3. Why haven't you been involved with computers before now?
4. What is your honest opinion of computer technology and education? Do you think it's a fad?
5. Are we as teachers responsible for gaining computer knowledge in order to help our students achieve a realistic perception of technology?
6. What do you think a computer can do for you in your classroom teaching or in administrative functions?
7. Do you use a typewriter?

8. Is there one particular task involved with teaching that you find onerous?
9. Do you spend a great deal of time writing?
10. Are you intrigued by computers, by computer labs?

Something to Do Before You View

1. Define computer literacy in your own words.
2. List some things you have heard or know about computers. (This list should include terms used by others that you have overheard.)

Active Viewing Suggestions

- Make notes while viewing the program.
- Jot down questions while viewing.
- Have a computer in sight while viewing the series.
- Hands-on activities after viewing the video will be most rewarding.
- Try stuff. Don't be afraid of error–the computer is tolerant.
  List some things you would like to try while viewing.

After Viewing

Small group activity:

1. Compare notes and arrive at a group definition of computer literacy.
2. Discuss the previewing questions and set workshop goals, both group and individual; e.g., I will use a word processor by the third week to prepare my daily lesson plans.
3. Prepare a quiz, based on the first program, for other groups to complete. Note: Keep it simple, keep it relevant, make sure you could pass it.

Goal Setting

Go visit the computer and get a close-up view of the components of a computer system. Don't be afraid to touch!

Terms

Hardware
Floppy disk
Main unit
Disk drive (External)
Printer
Boot
Processor
Diskette
Motherboard
Circuit board
Central processing unit (CPU)
Peripherals
Keyboard
Monitor
Disk drive (Internal)
Chips
Mouse
Computer
Software

Background Information

Computer Literacy

In the early 1980's computer literacy was usually defined in terms of one's fluency in describing, demonstrating, and generally discussing how computers are programmed, used and affect society.

Curriculum guides were produced to help teachers teach "computers." Although such curriculum guides still exist, they are already out of date. Elementary schools are integrating computers into traditional subject areas; for example, many teachers are using word processing extensively in language arts. Junior high schools are teaching applications such as word processing and database management, while senior high schools offer computer processing rather than computer literacy.

Keyboarding

Direct teaching by a trained typing teacher is a time-honored, successful technique in the higher grades. Many schools are now adapting these techniques for use at the elementary school level.

Formal instruction in keyboarding is being successfully introduced at the Grade 2 level. Software tutorials such as *Superkey* can work if students are motivated and an adult is available to monitor technique (eyes on copy, stroking keys not pushing, finger motion only, with wrists and arms still, right thumb for spacing).

Software Used in the Program

Science Tool Kit Master Module	Broderbund Software Inc. 17 Paul Drive San Rafael, California 94903-2101

Workshop #2

Key Concepts

1. Organizing computers for learning
2. Computer memory

Program Synopsis

In this program, you'll see how schools organize and use their computer resources. The Handyman will present a tutorial on the care and maintenance of disk drives. Dr. Gene Romaniuk will show you how the computer memory works. And we'll have a go at *Where in the World is Carmen Sandiego?*–interactive text adventure software.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:16	
Finding a Proper Home for the Computer	1:16	4:37	
Tips from the Handyman: Disk Drive	5:53	8:01	
Gene Romaniuk: Computer Memory	13:54	6:59	
Software Review: Interactive Text Adventures *Where in the World Is Carmen Sandiego?*	20:53	6:32	
Review	27:25	1:25	

Some Questions to Ponder Before Viewing

1. Review what you learned in Program 1. Pay special attention to questions you raised, and answers you're looking for.
2. Think of a classroom activity that you would like to try on the computer. This could be a learning activity for an activity centre alternative. Give some thought to software you might be interested in.
3. Have your students asked you questions about computers? List some of the questions they have asked.

Something to Think About

Did you know that computer technology has been used in classroom instruction for more than 25 years!

Active Viewing Suggestions

- Record questions that arise out of Handyman and Expert sections on the program.
- Think of variations of *Where in the World is Carmen Sandiego?* you might use in your classroom.

After Viewing

Small group activity:

1. There is a great deal of information and terminology in this program. Compare notes, and ask your workshop leader to review any section that you feel you need another look at.
2. Define each of the terms mentioned in this program in your own words. The Glossary at the end of this *Guide* will be helpful. Suggestion: Divide the task among group members and compare results with other groups.
3. As a group, agree on three ways you could use the software program *Where in the World Is Carmen Sandiego?* If the program is not appropriate for your class, think of variations that might be useful.

Goal Setting

Visit Carmen Sandiego - Enjoy!

Terms

Read/Write heads
Interface
Port
Drive (One, Two, A.B.)
Disk controller card
Byte
Megabyte backup disk
Memory expansion card
Data
Drive cable
Hard disk
RAM, ROM
Bits
Character
Kilobyte

Background Information

Educators often ask whether computers should be placed in labs or in the classrooms. There are many options. Computers are generally set up in labs at the junior high and secondary school levels for use by special groups of students (business education, computer literacy options). At the elementary school level single computers or clusters of three or four computers are often placed in classrooms. Computers may also be carried on mobile carts to be shared among classes, placed in labs temporarily and in classrooms at other times. Most schools cannot afford the hardware and software needed for teaching the same thing to all students at the same time. This, however, is an opportunity for growth and experimentation–in a classroom where individual needs are being met, not everyone is doing the same thing at the same time.

Factors that determine how computers will be organized include the number of computers available, space availability in the school, intended use, staff preference, and staff expertise. Many schools are beginning to try innovative organizational strategies. One possibility is to establish centres or group activities through which students rotate, spending a certain period of time at each. An example of learning groups is an elementary school with ten computers: one group works on keyboarding; a second group, handwriting; and a third group, spelling.

Other uses of computers within classrooms include:

- a demonstration tool connected to a TV set on projection monitor.
- a teacher tool for record-keeping, generating individualized assignments, etc.
- part of a multimedia learning station with video or laserdisk.

What is the ideal to which schools should be aspiring? Many leading educators recommend a computer lab for group training and classrooms with clusters of four to six computers and a computer on the teacher's desk. The library, teachers' workrooms and resource rooms should also have computers.

Software Used in Program 2

Microsoft Works	Microsoft Corporation 10700 Northup Way Bellevue, Washington 98004
Where in the World Is Carmen Sandiego?	Broderbund Software Inc. 17 Paul Drive San Rafael, California 94903-2101

Workshop #3

Key Concepts

1. Innovation in the classroom
2. Peripherals
3. Word processing

Program Synopsis

In this episode we'll visit an Apple Centre for Innovation. You'll see teachers demonstrating the power and potential of educational computing. The Handyman will show you how to use and care for a "mouse" peripheral. The basic concepts behind word processing will be demonstrated by Gene Romaniuk. And we'll conclude the half-hour with a keyboarding tutorial–*Super Key*.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:17	
Apple Centre for Innovation	1:17	6:30	
Tips from the Handyman: The Mouse	7:47	6:32	
Gene Romaniuk: Word Processing	14:19	7:05	
Software Review: *Superkey*/A Key-Boarding Tutorial	21:24	6:00	
Review	27:24	1:26	

Some Questions to Ponder Before Viewing

1. Have you thought about a way to introduce computers to your class?
2. Have you thought about a way to become an active user of the computer?
3. Do you use a word processor?
4. Since all teachers are teachers of reading and writing, have you thought about using a computer to enhance your students' writing? Have you thought about innovative ways to use a computer?
5. If there was one aspect of student writing you would like to improve, what is it? Can a computer assist you?

6. If there is one aspect of your own writing that you would like to improve, what is it? Can a computer assist you?
7. What do you do in your teaching that you might call "the leading edge of technology"?
8. What factors encourage (discourage) innovations in your school?

Active Viewing Suggestions

- List two activities you think a word processing program might make easier for you.
- List questions you have about the various sections as you are watching.

Something to Think About

Keyboarding should be considered an essential element of computer use.

After Viewing

1. Discuss the pros and cons of using word processing to teach writing.
2. Practice using the mouse and the word processing program you have available to you.
3. Use the word processing program to record the "stuff" you want to keep from this episode in our series.
4. Get a hard copy of the "stuff."

Goal Setting

Within the next three weeks, I'll use a word processor to write up one of my unit plans, and within five weeks, I'll incorporate changes in that unit.

Terms

Menu
Icon
Mouse pad

Background Information

Word processing in the classroom is evolving as one of the most powerful computer applications for learning. While the research about whether word processing can produce better writers is inconclusive, certain facts have become apparent and are found to be generally true.

Word processing reinforces the writing process by making editing easier. Students become less concerned about making mistakes and this facilitates the flow of ideas. As every teacher knows, children hate to revise handwritten work. On the computer this revision process actually becomes less onerous, possibly even enjoyable.

Students tend to write more. Although this may mean lots of poor writing, the formula for becoming a good writer is to write, write, and then write some more. Teachers are finding that for students at almost every level, using word processors allows greater freedom of expression.

Integrating word processing into the classroom is being accomplished in several curricular areas, but most notably language arts. Of course, there are drawbacks. A

word processor is more difficult to use than pen and paper. New skills such as keyboarding must be taught. There is also the common problem of limited numbers of computers.

Software Used in Program 3

Microsoft Word	Microsoft Corporation 10700 Northup Way Bellevue, Washington 98004
Paintworks Plus	Activision Inc. 2350 Bayshore Parkway Mountainview, California 94043
Superkey	Bytes of Learning c/o Scholastic Ltd. 123 Newkirk Road Richmond Hill, Ontario L4C 3G5

Workshop #4

Key Concepts

1. Planning models
2. Computer assisted instruction

Program Synopsis

Today, you'll learn how to use a special planning model which will help you evaluate how to best integrate the computer into your classroom. The Handyman will show us a variety of computer monitors. We'll continue our discussion on computer assisted instruction. This time, we'll add a new concept–computer managed instruction. We'll end the program with a review of one of the better word processing packages available to educators–*Word Perfect.*

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:14	
A Planning Model	1:14	4:22	
Tips from the Handyman: Computer Monitors	5:36	7:07	
Gene Romaniuk: Computer Monitors	12:53	7:10	
Software Review: *Word Perfect*	19:53	7:32	
Review	27:25	1:25	

Some Questions to Ponder Before Viewing

1. Computers are machines that will dehumanize education and create automatons. Yes? No?
2. Is teaching becoming technology?
3. Can the computer assist us in rethinking instructional design?
4. Review what you think is a good instructional model–diagram if necessary.
5. Do you like the possibilities presented by the word processor? Why? Why not?
6. Computers are a mistake, an expensive mistake. Computers are just another experiment in educational stupidity! Computers are nothing more than a ladder for some educational guru!

Something to Do Before You View

Discuss as a whole group whether you think that much information about computers is misinformation. The "questions to ponder" reflect discussion that might take place internally or externally. Think about whether knowledge of the computer, like all knowledge, gives us some form of control.

Active Viewing Suggestions

- Take note of the planning model introduced at the beginning of this episode and compare it with your own. You may want to sketch the model.
- Define C.A.I. and C.M.I. in your own words.
- Jot down three writing activities you use that include some repetition, that *Word Perfect* could make easier.

Something to Think About

The computer is a solution looking for a problem.

After Viewing

Small group activity:

1. Discuss the Model of Instruction talked about/presented in this episode. Do you agree with it? Is it useful? Could you use it in your own unit planning activities?
2. Compare your definitions of C.A.I. and C.M.I. and arrive at a consensus definition that is satisfactory.
3. Compare the way that you might use *Word Perfect* or another powerful word processor. You will get more ideas. Share with the whole group.
4. Discuss the thoughts that were raised in the previewing discussion, if the group thinks this will be helpful.

Goal Setting

Within two weeks,integrate at least one C.A.I. software package with one of the subjects you teach.

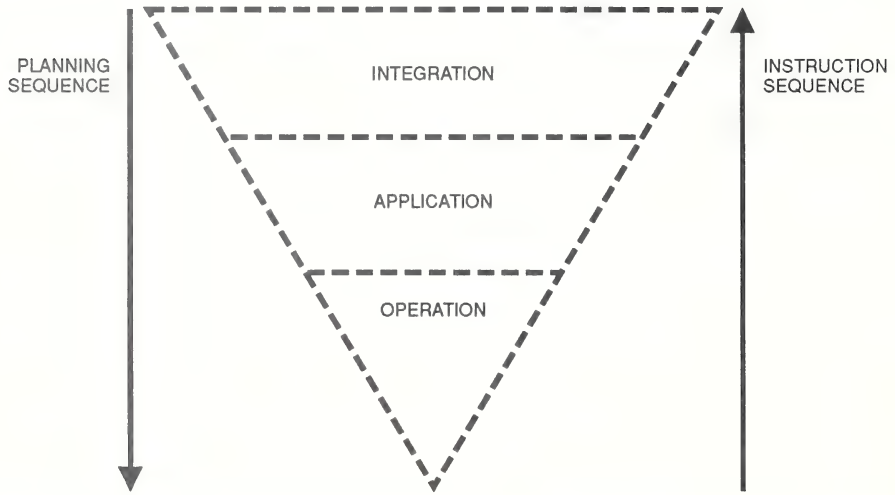
Terms

Operation
Integration
Controller card
C.A.I. (Computer Assisted Instruction)
Application
RGB color monitor
Chained

Background Information

Planning

In planning the use of computers, the overall goal for the student of any age, or worker, is integration–using the computer as a learning, creative, or productivity tool whenever necessary. The triangular implementation model below represents the steps that learners go through in learning to use the computer as a tool and the steps teachers go through in planning for instruction. The model's shape indicates the amount of time devoted to learning or use at that step. The teacher uses the model to plan instructional sequences from Operation to Application to Integration. The planning proceeds from top to bottom, beginning with plans for the intended integration. This helps to answer the question, "Why are we doing this?" at the outset.



Source: *Computers in Elementary Education, a discussion/directional paper.* Alberta Education Curriculum Branch. February, 1987.

Software Used in Program 4

Arrakis Advantage	Atari Canada 90 Gough Road, Units 1 & 2 Markham, Ontario L3R 5V5
Word Perfect	JB Marketing 120 - 9 Street East Box 442 Cornwall, Ontario K6H 5T2

Workshop #5

Key Concepts

1. The computer as a personal tool
2. Databases

Program Synopsis

In this program you will learn about using the microcomputer as a personal tool, discover how computers are helping to relieve us many of the mundane tasks we face every day in our classrooms. The Handyman will introduce you to the IBM Personal System 2 microcomputer and Gene Romaniuk has a thing or two to share with us about databases. We'll end the session with a review of *Kid Mail,* a language arts telecommunications program for elementary school children.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:10	
A Teacher's Personal Tool	1:10	6:58	
Tips from the Handyman: IBM Personal System 2	8:08	6:26	
Gene Romaniuk: Database Management	14:34	7:08	
Software Review: *Kid Mail*	21:42	5:51	
Review	27:33	1:17	

Some Questions to Ponder Before Viewing

1. There are many mundane tasks associated with teaching that rob us of valuable energy and imagination, which could be better used to teach/work with students.
2. I always knew that telecommunications was going to be used in my class.
3. What is a database?
4. Will this database really save me time in my class?
5. Tell yourself how much you enjoy the creeping, insidious administrivia that is eating up your time and draining your energy.

Something to Think About

It is still too early to draw conclusions about the effect of technology on teaching, learning and education generally.

Active Viewing Suggestions

- Jot down three tasks you think can be relegated to a computer.
- Define **database** in your own words, and honestly think about its application to your own teaching tasks.
- Can you use *Kid Mail* in your classes? How? Note some ways.

After Viewing

Small group activity:

1. Consolidate: Make sure that you have control of the terminology. Arrive at consensus definitions and personal definitions. Review specific video programs to reconfirm the direction you want to go.
2. Exchange ideas about the use of databases. Will it save you time? How? What glitches could occur?
3. Exchange ideas about *Kid Mail* by using *Kid Mail* with your group.
4. Discuss: Can we end the paper chase–or control it? Is it worth the effort you will have to put forth to use the computer to do this?
5. What mundane activities will the computer relieve you of?
6. Should we investigate alternative computers?

Goal Setting

List the mundane activities you dislike and establish a computer activity to help relieve this boredom.

Terms

Database

Modem

Background Information

Teacher's Personal Tool

Computer tools can free the teacher from mundane time-consuming tasks such as record-keeping and creating displays, tests, and assignment sheets.

These tools come under two categories:

1. **Dedicated programs** designed for a specific application. Some popular examples being used by many teachers include:

Crossword Magic	Mindscape Inc. 3444 Dundee Road Northbrook, Illinois 60062

Class Records	Alphatel Computer Products 16814 - 114 Avenue Edmonton, Alberta T5M 3S2
Master Math Worksheet Generator	Minnesota Educational Computing Corporation (MECC) 3490 Lexington Ave., North St. Paul, MN. 55126

2. Multipurpose programs integrate several applications into one package, which may save cost but may also be more difficult to learn how to use.

   Examples include:

Appleworks	Claris Corporation 440 Clyde Ave. Mountainview, CA 94043
Lotus 1-2-3	Lotus Development Corporation 55 Cambridge Parkway Cambridge, MA 02142

Database Management

A database can be compared to a set of file cards. Each file card contains the same kind of information in the same format. On the computer each file card is called a record; each piece of information in the record is called a field. The entire set of records is a file.

Different types of fields may be created, depending on the software:

text field	- holds letters, numbers or any other keyboard character
number field	- holds numeric values
date field	- holds date values
picture field	- holds graphics
logical field	- holds one or two values, e.g., yes or no
formula field	- processes values in other fields according to a formula specified by the user.

Teachers are discovering that databases can be used as an effective teaching tool with students of all ages. Typically, students go through three stages in learning to use a database management program:

1. They work with a database created entirely by someone else; practise searching, sorting and printing.
2. They put information into a database that has a format (template) designed by someone else.
3. They create a database from scratch: design the structure for organizing information, collect and enter the data, and manipulate the data to solve a problem or generate a report.

Teachers should ensure that students work with off-computer databases on real file cards during the above three stages. This concrete stage should precede the abstract computer stage.

Software Used in Program 5

Microsoft Excel	Microsoft Corporation 10700 Northup Way Bellevue, Washington 98004
Kid Mail	(Public Domain) Computer Using Educators P.O. Box 271704 Concord, California 94527-1704

Workshop #6

Key Concepts

1. "Leading edge" classrooms
2. Practical classroom uses of computers

Program Synopsis

We'll tour a number of classrooms participating in the IBM Othello Project. This successful experiment shows how hardware developers and educators can cooperate to meet mutual objectives. The Handyman will demonstrate the wide variety of printers available to you and your computer. Getting the most out of a great idea is Gene Romaniuk's topic for conversation. He'll explain how a computer can quickly translate your brain waves into tangible classroom applications. We'll end the half-hour with a software review of *Mathematics Activities Courseware* from Houghton-Mifflin.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:14	
Futures: The IBM Othello Project	1:14	7:05	
Tips from the Handyman: Adding a Printer to Your Computer System	8:19	8:09	
Gene Romaniuk: Computers: A Tool for the Teacher	16:28	7:06	
Software Review: *Computer Assisted Instruction in Mathematics (MAC)*	24:34	4:05	
Review	27:39	1:11	

Some Questions to Ponder Before Viewing

1. Watch the section on Othello (apologies to Mr. Shakespeare). Discuss as a whole group: What *are* the possibilities of "technology in our school."
2. Keep up your notes–with the Handyman.
3. Are computers changing the way you teach?

4. Are teachers getting the support needed to properly implement computers in schools?
5. Take stock. What type of computers do you have? What type of computers do you want? What is software inventory? What type do you have? How many? Where should they be? What type would you like to have?

Goal Setting

I will set a goal of using one of the software programs in my class/for my classes within the next week! (Share ideas.)

Something to Think About

The computer will become an educational tool, and a very useful one, when we as educators determine just what it is we do well in education and why, and what we do poorly. This type of analysis will provide the avenues required to implement computer assisted instruction as *part* of what we can offer students as teachers.

Terms

Impact printer
Dot matrix
Laser printer
Non-impact printer
Daisy wheel printer
Ink jet printer

Background Information

Teacher Tools

Using the computer to create a product involves the following steps:

1. Deciding where the computer can assist: generating ideas, planning the product.
2. Getting organized: checking hardware requirements (Do I need a printer? Do I have enough memory?); checking software requirements (Do I need a data desk? Do I need the manual?)
3. Doing it: using the hardware and software.
4. Shutting down: sorting files, backing up disks, shutting off hardware.

Before using a printer with an application, the software must be configured to the printer–and often the controller card, as in the case of the Apple IIe. The software will have a menu item for this purpose.

Software Used in Program 6

The Print Shop	Broderlund Software Inc. 17 Paul Drive San Rafael, California 94903
Mathematics Activities	Houghton Mifflin Canada Ltd. 150 Steelcase Road West Markham, Ontario L3R 1B2

Workshop #7

Key Concepts

1. Evaluating educational software
2. Disk operating systems (DOS)

Program Synopsis

This program discusses evaluating software. A number of professionals recommend what to look for, and what to avoid. The Handyman continues his session on printers, demonstrating a laser printer: an expensive peripheral that offers outstanding quality and resolution. Gene Romaniuk explores the wonders of DOS–a disk operating system that makes your computer go. We'll end the program with a software review of the popular *Bank Street Writer 3*. It's an elementary word processor that just seems to improve with age.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:10	
Evaluation of Software: What's Hot and What's Not	1:10	8:24	
Tips from the Handyman: Laser Printers	9:34	3:29	
Gene Romaniuk: Explains DOS	13:03	6:08	
Software Review: *Bank Street Writer 3* An Elementary Word Processor	19:11	8:06	
Review	27:17	1:33	

Some Questions to Ponder Before Viewing

1. Consider what you think good software should do–what do you want it to do for *you* in *your* classes?
2. How would you evaluate software for your students?
3. If you feel the word processors we have seen thus far are too complicated for your students, what would an appropriate package include?
4. Do you like the "Cadillac" version of most things?

5. "I'm ready for more meat here, I want to know more about the technology of this technology."

Active Viewing Suggestions

- Close listening and close viewing of the evaluation segment of this program will be worthwhile.
- Make a checklist of key elements in the evaluation of software– something you can and will use.
- Start a list of software titles which will be a ready reference for you in the future.
- Keep up your list of enjoyable computer language: e.g., downloading!
- DOS is important! Ask for a review–or for more from your workshop leader.
- *Bank Street Writer 3* is very useful in elementary and junior high. Think of applications in your classes and list them.

Something to Think About

Sooner or later someone's going to talk about evaluation.

After Viewing

Small group activity:

- Be creative and design your own activities. Use a software program! Make a Banner!

Goal Setting

Evaluate one software package using the criteria for evaluation you discussed in Questions To Ponder.

Try to concentrate your efforts on your own personal applications and uses of the computer.

Terms

DOS (Disk Operating System) Download
Serial port

Background Information

The approach to **software evaluation** varies throughout North America. Many jurisdictions have established evaluation centres for their teachers. Many teachers have purchased software on speculation and been disappointed. Buyer beware. Software should be previewed before purchase. Although the quality of software is improving, the rejection at evaluation centres is still very high. Evaluation of software for use in the classroom is ultimately the teacher's responsibility. It means time spent at the computer and, hopefully, testing it with students.

Several commercial sources are recognized leaders in the production of educational software. Broderlund, Houghton-Mifflin, The Learning Company, MECC, Scholastic, and Sunburst are a few. The Minnesota Educational Computing Corporation has

entered into a licensing agreement with Alberta and with several school jurisdictions to assist schools in acquiring software.

Two other sources of software are the public domain and "freeware." Public domain software are programs which have been released by an author without copyright notice. These programs may be copied and used without restriction. However, the quality of public domain software tends to be bad, especially for education. An exception, *FrEd Writer*, is a good word processor with features such as prompted writing. Freeware, or personal domain software, may be copyrighted but is offered without charge to users with the suggestion of a modest fee should it prove useful. *Hinky Pinky* is an educational example of freeware.

Software Used in Program 7

IBM DOS 3.3 *IBM OS/2*	IBM Corporation Ltd. 10250 - 101 Street Edmonton, Alberta T5J 3P4
Bank Street Writer 3	Scholastic Inc. 123 Newkirk Road Richmond Hill, Ontario L4C 3C5

Workshop #8

Key Concepts

1. Software piracy
2. Using spreadsheets in education

Program Synopsis

In today's program: software piracy. It's a growing problem that costs educational publishers millions of dollars annually–and it's a crime some teachers commit without ever knowing. Then the Handyman will show you how you can share one printer with several computers. Keeping track of facts and figures is a cinch with a spreadsheet–Gene Romaniuk explains how this popular program works. We'll wrap up with a software review of *The Factory* and its improved cousin, *The Superfactory*.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:11	
Software Piracy and Copyright	1:11	6:58	
Tips from the Handyman: Sharing a Printer	8:09	5:11	
Gene Romaniuk: Spreadsheets...A Better Way to Fill in the Blanks	13:20	6:15	
Software Review: *The Factory*...Problem Solving Software	19:35	7:38	
Review	27:13	1:37	

Some Questions to Ponder Before Viewing

1. Have you reviewed the latest copyright regulations, especially those concerning computer software?
2. Does your school jurisdiction have a copyright policy?

Extra Activity: Examine appropriate sections of the Copyright Act prior to viewing this episode.

3. What is a spreadsheet–define it.

4. Problem solving is something we all value. Are there applications for problem solving strategies in your classes? Think of three learning activities which could be enlightened by a problem solving application.
5. Can you use more than one computer with a single printer? Is your school making effective use of its printers?

Something to Think About

Recent amendments to the Copyright Act have dramatically increased the penalty for breaches of the Act. Under the former provisions, every illegal copy dealt with attracted a fine not exceeding $10.00, whereas the penalty now is a fine not exceeding $25,000.00 on summary conviction and a fine not exceeding $1,000,000.00 on conviction on indictment. The Government is expected to introduce legislation to specifically include computer programs as literary works.

After Viewing

Small group activity:

1. Is there any application for a spreadsheet in your classes? Share ideas.
2. As a group project, select a spreadsheet and design a practical application for use in your school.
3. Can you goal set, with regard to a networked lab? Are you ready to try it? If not, when will you be ready? Review with group members. What would you have to know?
4. Can you use *The Factory* in your class? If not *The Factory*, what other problem program would you like to examine? What should it do? Can you set one up?
5. Discuss authoring with your group leader–if not now, soon!

Terms

Data switch box
Integrated software configuration
Local area network

Background Information

Spreadsheets automate the kind of figuring you do with a sheet of paper and a calculator. They are organized into rows and columns–a cell is the intersection of a row and column. Each cell contains a value or label. A label is text and may be used as headings for columns and rows. A value is a number function, formula or reference to another cell.

Spreadsheets have many applications in schools. They can be used to ask "what if" questions: to forecast and assist in decision making. A student could ask "What would my average be if my next test mark was over 90?" The students' union could ask, "What would our income be if we charged $10 for the yearbook?"

The spreadsheet can be another form of database and includes the ability to generate bar, line, and circle graphs. *Microsoft Works* is such an example.

Software Used in Program 8

The Factory	Sunburst Communications Box 3240, Station "F" Scarborough, Ontario M1W 9Z9
Microsoft Excel	Microsoft Corporation 10700 Northup Way Bellvue, Washington 98004

Workshop #9

Key Concepts

1. Canadian Centre for Learning Systems
2. Using telecommunications in education

Program Synopsis

Today, you'll see how business interests and education can work together. We'll tour the Canadian Centre for Learning Systems, a hothouse for computers and the latest in educational technology. The Handyman will introduce you to a new piece of hardware–the modem. Gene Romaniuk will show you how to connect with the rest of the computing world using telecommunications software. We'll round out the half-hour with a software review of the Early *Learning Series*, a fine example of early childhood software published by the Minnesota Educational Computing Corporation.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:11	
CCLS – Canadian Centre for Learning Systems	1:11	5:35	
Tips from the Handyman: Modems	6:46	8:44	
Gene Romaniuk: Telecommunications... Let Your Computer Do the Walking	15:30	7:09	
Software Review: *MECC-Early Learning Series*	22:39	4:41	
Review	27:20	1:30	

Some Questions to Ponder Before Viewing

In a group as a whole:

1. Consider what the classroom of today should include in terms of technology (e.g., the classroom of today should include a network like Othello, with the ability to talk computer to computer.)

Active Viewing Suggestions

- If you have a great interest in the technology, pay close attention–otherwise, pick up what you need.
- If you think that nothing so far applies to your kindergarten class, you will like what you see in the software feature.
- Can you use this software? List three activity centre uses for a single computer centre in your class.

Something to Think About

Education, rightly or wrongly, has moved away from training as its sole goal. Training and application perhaps best defines education as it is viewed today. However, much of the information and data being generated about computers and their applications in education is being provided by the American military industrial complex. Most of the research in this area is being conducted either directly or indirectly (funded by) these same sources. As educators we must all be aware of this trend, and the implications it may have on our understanding of the role of technology in education. (Source: Dr. Gretchen L. Johnson, *Ideological Roots of Educational Thought - A Study of Borrowing from Industry, the Military and Economic Theory.* National Council of Social Studies, Washington, 1976.)

After Viewing

Small group activity:

1. Why did CCLS fail in its original plan?
2. How can we avoid failing, or should we?
3. When using technology (the computer) should we accept that failure is going to be a part of what we must do?
4. How do we minimize the errors? Is avoidance a good alternative?
5. If you don't use a computer for your personal needs, you will not use a computer in your class.

Goal Setting

Build in an activity that you would use a computer for on a regular basis.

Terms

Modem
ASCII
Half duplex
Sysop (Jargon)
Baud rate
Full duplex
Electronic mail
Bulletin boards (BBS)

Background Information

Telecommunications is the transmission of signals from one computer to another using telephone lines, microwaves and/or satellites. Generally, four basic functions or services are provided: electronic mail, bulletin board systems, teleconferencing, online databases.

1. **Electronic mail (E-mail):** Personal messages are sent and received electronically.
2. **Bulletin board systems (BBS):** Messages can be posted and read, similar to a traditional wall-mounted bulletin board. There are hundreds, perhaps thousands of "open" boards across North America. For these boards all you need is a telephone number and permission from the Sysop (system operator) to gain access. Since anyone with the hardware can establish a BBS, some of these independent boards are of poor quality. The BBS related to education are "closed", i.e., you must be a member.
3. **Teleconferencing:** Two or more computer users can link up and "chat" online. Schools are beginning to link classrooms as electronic pen pals.
4. **Online databases:** There are over 5000 databases that users can search via computer. There are three types:
   - full text, such as newspaper collections
   - bibliographic, such as ERIC
   - nonbibliographic collections, such as labor statistics.

   Access is gained through membership and payment of fees to a database vendor or information utility such as *The Source* or *Compuserve*.

Almost any computer can become a terminal for telecommunications. You need to add a modem (MODulator-DEModulator) that converts digital information into audible tones that the telephone can understand. It may be a built-in or internal modem, an internal modem added as a card in one of the slots (Apple IIe, IBM PC), or it may be an external modem plugging into the RS-232C serial port.

Software is also needed for telecommunications. A variety of packages are available. In some cases, such as the Hayes Smartcom modem, the software is included.

Software Used in Program 9

Smartcom II	Hayes Microcomputer Products Inc. P.O. Box 105203 Atlanta, Georgia 30348
Arithmetic Critters	Minnesota Educational Computing Corporation 3490 Lexington Ave. North St. Paul, Minnesota 55112

Workshop #10

Key Concepts

1. Integrating computers into classrooms
2. Local area networks
3. Computer graphics

Program Synopsis

The program begins with a discussion of integration. Computers are great teacher tools once you've successfully integrated them into the day-to-day routine in your classroom. The Handyman will demonstrate how computers can be grouped together to share resources in local area networks. Gene Romaniuk will introduce you to the colorful world of computer graphics. And *Kidtalk*, a talking word processor targeted at elementary school children, will be reviewed.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:12	
Integration	1:12	7:31	
Tips from the Handyman: Networking IBM's (LAN)	8:43	5:59	
Gene Romaniuk: Graphics Tools... Computers Can Imitate Art	14:42	7:14	
Software Review: *Kidtalk*–A Talking Word Processor	21:56	5:30	
Review	27:26	1:24	

Some Questions to Ponder Before Viewing

1. Have you thought seriously about ways of integrating the computer into your classes. What would you do? How would you do it? Why would you do it that way?
2. One thing that has always fascinated me about computers is graphics drawing. Yes? No?
3. Computer Art is bogus–non-creative.
4. Can computers talk?

5. Is a computer network like an old phone system? (10 people on the line–and all of them radical or strange?)

Active Viewing Suggestions

- Remember you can stop the tape at any time.
- Keep your lists going.
- Keep asking and writing questions.
- Keep thinking about how you might use these ideas with your students.
- Think about adaptations you can make to what you see.
- Think of three graphics projects for your classes. List them, save them, and use them.

Something to Think About

The most important aspect of computers in education is the thoughtful and well planned integration of quality software (your definition) into your educational program.

After Viewing

Large group activity:

1. Plan to integrate *Kid Talk* into a language arts program at the Grade 5 level, using the integration model you saw in an earlier program.
2. Plan to integrate *Where in the World Is Carmen Sandiego?* into a Social Studies class at the Grade 10 level.

Goal Setting

1. Use *Kid Talk* and/or a graphics program and have fun!
2. Plan a strategy for integration. Small scale–one activity at a time. Keep notes on your ideas.

Terms

Network
Server
Spooler

Background Information

Integrating computers into the teaching/learning process means using the computer as a tool for teaching regular subject matter which has traditionally been taught in other ways. In this context the computer is not merely an aid but an integral part of the overall process.

Integration is easier said than done; it requires that teachers adapt their teaching strategies to incorporate technology. Administrators must provide teachers with a supportive atmosphere in which they feel confident about trying new things. This support must extend to providing opportunities for teacher inservice training.

Software Used in Program 10

Dazzledraw	Broderlund Software Inc. 17 Paul Drive San Rafael, California 94903
Kidtalk	Bytes of Learning c/o Scholastic Inc. 123 Newkirk Road Richmond Hill, Ontario L4C 3C5

Workshop #11

Key Concepts

1. Computers in special education
2. Integrated software

Program Synopsis

In this half-hour, we see computers in special education settings. Students with mental and physical handicaps can benefit dramatically from computer technology. The Handyman continues his demonstration of local area networks, focusing on networking APPLE computers. Integrated software packages are previewed and evaluated by Gene Romaniuk, and we conclude the session with our regular software review, putting *The Other Side*, a Social Studies simulation, through its paces.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:01	
Computers and Special Education	1:01	6:31	
Tips from the Handyman: Networking Apples	7:32	7:35	
Gene Romaniuk: Integrated Software... More is Better	15:07	6:02	
Software Review: *The Other Side* A Social Studies Simulation	21:09	6:16	
Review	27:25	1:25	

Some Questions to Ponder Before Viewing

1. What good is all this technology if it is not truly to the advantage of the teacher, the student, or the learning process?
2. What causes some teachers to be uneasy about change in education?
3. Why are computers a "natural" partnership with special education?

Active Viewing Suggestions

- Watch for ways that computers are "levelling the education playing field."
- Consider the degree of user-friendliness of the computer for children with special needs.
- Consider the teacher's role in a classroom equipped with a LAN (local area network).

Something to Think About

Isolating the computer in a lab and time-tabling its use is not an integrated instruction plan.

After Viewing

1. Discuss what causes teachers to be uneasy about change in education.
2. Why are computers a "natural" partnership with special needs students?
3. Plan to integrate *The Other Side* into the Social Studies program at the Grade 8 level (large group activity).
4. Do a graphics project you can use in class next day. Integrate– plan for it (small group activity).

Goal Setting

I will use one of the software programs I have seen in this series within the next three weeks in my class. Share ideas!

Terms

Electronic mail
Firmware
LAN

Background Information

Networking Computers

LAN is an acronym for Local Area Network, computers linked together to share peripherals and data within one building (often within the same room). A network typically consists of several workstations, one or more printers, and a server (usually a computer dedicated to running the network).

When deciding which network to acquire, educators should consider the security of users' files, the ease of use, and the flexibility of the network.

There are some misconceptions about the advantages of networking:

1. Networking saves the cost of individual floppy drives for each workstation. (In fact, most workstations contain floppy drives so that each computer can be used in a non-networked situation. In addition, each workstation requires a network cord/board, adding to the cost.)

2. Networking saves the cost of printers. (A simple data switch [See Program 8] can accomplish the same thing at a fraction of the cost of a network.)
3. Networking saves the cost of multiple copies of software applications. (The cost of a networked version of software is based upon the number of workstations and is usually just as expensive as buying one software package per station.)
4. The teacher can "pull up" any student's screen and monitor what they are doing. (The teacher can accomplish the same thing in a much more humanistic manner by walking around the room and talking individually to students.)

Software Used in Program 11

Appleshare	Apple Computer Inc. 20525 Mariani Ave. Cupertino, California 95014
The Other Side	Tom Snyder Productions 123 Mount Auburn St. Cambridge, Mass. 02138

Workshop #12

Key Concepts

1. Classrooms of the future
2. Electronic/desktop publishing

Program Synopsis

In today's program, the Saanich Project–a joint venture between business and education interests in British Columbia. You'll see how two partners with different objectives can coexist and benefit from one another. The Handyman demonstrates LCD projection systems for computers. They are like an overhead projector except they use a liquid crystal display. Then Gene Romaniuk introduces you to the exciting world of desktop publishing. And we'll end the program with a review of *Appleworks*, a popular integrated software package.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:15	
Tomorrow's Classroom Today–Saanich Project	1:15	10:40	
Tips from the Handyman: Overhead Projectors for Computers	11:55	2:31	
Gene Romaniuk: Desktop Publishing	14:26	6:17	
Software Review: *Appleworks:* An Integrated Software Package	20:43	6:44	
Review	27:27	1:23	

Some Questions to Ponder Before Viewing

1. Sketch and label a classroom of the future. Be as specific as you can. "The Classroom–Year 2010." Be ready to discuss.
2. Is the computer simply the latest in a series of instructional fads that will fade gradually into obscurity?

Active Viewing

- What makes the Saanich Project so innovative?
- Keep making notes. Jot down ideas for using desktop publishing at your school.
- *Appleworks*–works.

Something to Think About

The only practical reason for changing schooling, and the only one with any hope of success, is because society itself is changing. (In "Visions 2000", a discussion paper by Technology Education Committee, Alberta Education.)

After Viewing

Small group activity:

1. Is *Appleworks* for you? Discuss ways this program might be useful to you. How is your school using *Appleworks* now?
2. Discuss practical ways of using *Appleworks* immediately.

Large group activity:

1. Discuss the classroom of the future. Share your sketch with the group.
2. Can you use desktop publishing in your school?
3. Have you thought about computer projection systems? Is this an appropriate application of computer technology?
4. Review the terms introduced and provide definitions (your own are the best!)

Goal Setting

Design a project for desktop publishing.

Terms

LCD projection system
Desktop publishing
Wysiwyg (Jargon)

Background Information

Electronic publishing or **desktop publishing** means using the computer as a tool for producing camera-ready master copy for reports, form letters, magazines, etc. One person can do all the steps necessary to create an entire document, reducing cost and time.

The quality of the product is determined by the hardware, the software, and human input. The basic hardware configuration consists of a computer and printer. Many vendors are marketing hardware and the customer is advised to make careful comparisons to obtain the best value for the money.

Software tools can be categorized as:

1. Multipurpose tools–regular word processors and graphics tools.
2. Dedicated software–a software package designed to produce only a certain format such as a newspaper.
3. Page assembly program–programs that are generally used after writing the text with a word processor. *Pagemaker* and *Ready Set Go* are two examples.

Electronic publishing is a very powerful time-saving tool for both staff and students. Staff can produce professional quality handbooks, newsletters, tests, report cards, etc. Students can publish their writing in a quality that is almost as good as the books on the shelves of the library. If templates (formatted "shells" done by experts) are used, it is not necessary for every computer user to have advanced knowledge of publishing standards. The writer can concentrate on content and style rather than form or design.

Examples of desktop publishing software being used in schools include:

Publish It!	Timeworks Inc. 444 Lake Cook Road Deerfield, Illinois 60015
Springboard Publisher	Springboard Software Inc. 7807 Creekridge Circle Minneapolis, MN 55435

Software Used in Program 12

Pagemaker	Aldus Corporation 411 First Ave. South Seattle, Washington 98104
Timeworks	Timeworks Inc. 444 Lake Cook Road Deerfield, Illinois 60015
Appleworks 2.0	Claris Corporation 440 Clyde Avenue Mountainview, California 94043

Workshop #13

Key Concepts

1. Computers in early childhood education
2. LOGO
3. Digital scanners

Program Synopsis

In this program you'll see how computer technology can help to promote learning in early childhood classrooms. There are a number of tried and proven computer activities worth looking into for your children in Kindergarten and Grade 1. *LOGO* is a popular piece of software that challenges students in elementary school, right on up through to senior high. Gene Romaniuk demonstrates the durable program. The Handyman demonstrates digital scanners and we'll conclude the session with a software review of *Pagemaker*– a popular desktop publishing tool.

Content Map

	Segment Start	Length of Segment	Your Counter Number
Intro	0:00	1:24	
Early Childhood Curriculum and Computers	1:24	5:03	
Tips from the Handyman: Scanners	6:27	7:46	
Gene Romaniuk: A Look at Logo	14:13	6:57	
Software Review: *Pagemaker*/A Desktop Publishing Tool	21:10	6:21	
Review	27:31	1:19	

Something to Ponder Before Viewing

1. At what age should a child be introduced to computers?
2. Many parents are beginning to demand that their children have adequate exposure to computers.

Active Viewing Suggestions

- View the final program in this series: Use all the strategies you have been using.

Something to Think About

The computer is unlike anything ever introduced to education. It is capable of infinite patience, of monitoring individual progress, and is unparalleled as a training device. It is a tool that has great promise provided that as educators we are wise and knowledgeable in its use.

After Viewing

1. Set up a debate for the group or discuss "teachers using the computer"!
2. Discuss at what age a child should be introduced to computers.

Goal Setting

Enjoy your computer–it is a tool designed for your use.

Create something! Make something for your students. By now they will know that you are involved in this workshop. A final project by you, for them, is a good idea.

Terms

Monitor output jack

Logo

Background Information

Early Childhood and Computers

Computers are being used increasingly with students in kindergarten and Grade 1 classes. Educators claim that by using computers students learn fine motor control, eye-hand co-ordination, memory skills, sequential thinking, certain math concepts, certain language concepts, creativity and cooperation in groups. However, research is scanty and inconclusive and, therefore, strong opinions for and against computers in early childhood exist.

While the debate rages in academic circles, more and more teachers are introducing the computer as a learning tool. As a learning centre in the early childhood classroom, students exercise choice in the centres they work at. They work in pairs or small groups discussing their work as they interact with the computer, their peers, and the teacher.

Computer activities are not an add-on but are integrated into the current theme, e.g., autumn, animals, etc. The triangular model (See Program 4) assists the teacher in planning for instruction. Operational skills required are minimal: turning the computer on and off, locating numbers and letters on the keyboard, using the space bar, delete, and return keys, and moving the cursor with the arrow keys.

Software for young children features:

- little reading
- activity appropriate to the developmental level of the child
- minimal keyboarding skills
- active involvement of the student.

All of the other features of good software for all levels also apply.

Software Used in Program 13

Pagemaker	Aldus Corporation 411 First Avenue South Seattle, Washington 98104
Logo Writer	Logo Computer Systems Inc. 555 W. 57 Street Suite 1236 New York, N.Y., 10019

Glossary

Application - A software program that instructs the computer to perform various real-world tasks such as accounting, word processing, games, or testing.

ASCII - Acronym for American Standard Code for Information Interchange, pronounced "as-key." A code in which the numbers from 0 to 127 stand for text, characters and punctuation. This code is used for transmitting text from a computer to a printer, or to another computer.

Baud rate - The rate at which a computer or a peripheral device can send and receive data, measured in bits per second.

Bits - Acronym for binary digit (0 or 1), the smallest possible unit of information in a computer.

Boot - To start the computer by loading a program into memory from an external storage medium such as a disk.

Bulletin boards (BBS) - A computerized version of ordinary bulletin boards on which people post announcements and messages.

Bus network - A set of wires and connections that provides links between components within a CPU, such as registers, ALU, and input/output ports, or between the CPU and other devices such as RAM, interfaces, or circuit cards.

Byte - A computer word of eight bits. One byte can represent an instruction, a letter, a number, a punctuation mark, or other characters.

C.A.I. (Computer Assisted Instruction) - The use of a computer to help teach people through interaction with educational software.

Central Processing Unit (CPU) - The "brain" of the computer; the microprocessor that performs the actual computations.

Character - A letter, digit, punctuation mark, or other written symbol used in printing or displaying information.

Chip - A small flat piece of silicon on which electronic circuits are etched.

Circuit card - A small board on which chips and other electronic components are mounted, with connectors to the computer's bus.

Computer - An electronic device that stores, transfers, and transforms information at high speed and with great accuracy.

Configuration - The hardware and software arrangement of a computer system.

Controller card - An interface card that connects a printer or a disk drive to a computer, and controls the operation of the device.

Daisy wheel printer - A printer containing a printing element in which the characters are at the end of "petals" radiating from a central hub. Produces letter-quality print but not graphics.

Database - A large collection of related information, in files, accessible by computer.

Data switch box - A device which enables two or more computers to be connected to share one printer (sequentially) .

Desktop publishing - Electronic or desktop publishing means using a computer to produce camera-ready master copy for printing any documents such as letters, magazines, and newspapers. One person can do all the steps to create an entire document.

Disk controller card - An interface card that connects one or more disk drives to a computer. It is the communication link between the disk drive and the computer.

Disk drive - A peripheral device which spins a disk, either to store or retrieve information. If two drives are used, they will be referred to as Drive 1, Drive 2; or Drive A, Drive B. Some computers have internal or built-in drives, while others have external drives which are connected to the computer by a cable.

Diskette - See under floppy disk.

DOS (Disk Operating System) - A software system that allows the computer to control and communicate with one or more disk drives.

Dot matrix printer - A kind of printer that produces characters formed by patterns of dots. Can generate graphics as well as print.

Download - The process by which a file is sent from one computer to another.

Electronic mail - Users can send, receive, and answer messages over telephone lines between computers equipped with modems.

Firmware - Unchangeable programs that are installed at the factory level in ROM (read-only memory).

Floppy disk - A magnetic recording surface contained in a thin flexible plastic jacket. A device for storing computer information or data.

Full duplex - A means of communicating between two computers in which signals are sent and received at the same time.

Half duplex - A means of communicating between two computers in which signals can only be sent or received one at a time.

Hard disk - A disk made of hard metal and sealed into a drive or cartridge. Can hold 40 or 50 times as much information as a floppy disk.

Hardware - The physical parts of a computer which you can see and touch, including disk drives, chips, interface cards, etc.

Icon - A symbol that represents an object, concept, or message.

Impact printer - A printer in which a letter or pin strikes the paper to create an impression. The daisy wheel and dot matrix are examples of this type of printer.

Ink jet printer - A printer which forms impressions on paper by squirting dots of ink to form characters or graphics.

Integrated software - A group of application programs which share data. Example: data base, spreadsheet, and word processor may be all on one disk.

Interface - Hardware or software through which computers and peripherals communicate.

Keyboard - An input device which looks and acts much like the keyboard of a typewriter.

Kilobyte (K) - A unit of measurement. 1 kilobyte = 1024 (2^{10}) bytes. 64K = 65,536 bytes.

LAN - Acronym for Local Area Network. Two or more computers connected to a network controller or file server, plus another computer which runs the network operating system, and which in turn has access to hard disk drives, printers, plotters, and other devices.

Laser printer - A printer that combines laser and photocopier technology to produce high quality print and graphics.

LCD projection system (Liquid Crystal Display) - Screens used on laptop computers and, recently, on projection systems.

Logo - A computer language which encourages learning through discovery and problem solving. Excellent graphics potential.

Main unit - A group of chips connected on a board which holds RAM, ROM, the microprocessor, custom integrated circuits, and other components that give the computer its ability to compute. Also called main circuit board, main logic board.

Megabyte backup disk - See Hard disk

Memory expansion card - A circuit board that adds extra random-access memory (RAM) to a computer. Also called RAM disk.

Menu - A list of options from which the user can choose when running a program.

Modem - Short for modulator/demodulator. A peripheral device which provides communication between computers via telephone lines. It converts a computer's digital signals to audio tones and then back to digital signals for the computer at the other end.

Monitor - A display device, which looks like a television set, that receives video signals through a direct connection to a computer's video port.

Motherboard - See Main unit

Mouse - A peripheral that controls a pointer on the screen.

Mouse pad - An accessory to use with the mouse. Helps to keep the movable ball in the mouse clean.

Non-impact printer - See Ink jet printer.

Peripherals device - Any equipment that you connect to a computer to enhance its capabilities. Examples: printer, modem, mouse.

Port - A socket on the back of a computer where you plug in a cable to connect a peripheral device, another computer, or a network.

RAM (Random Access Memory) - Computer memory that can be read from or written to in any order. All information in RAM is erased when the power is turned off.

Read/Write heads - Magnetic components on a disk drive which read information from the diskette, and also record data on a diskette.

RGB color monitor (Red Green Blue) - A more expensive, but more effective (higher resolution) monitor in which the signal is broken into three distinct signals - red, green, blue.

ROM (Read Only Memory) - Programs are permanently stored during the manufacturing process. Not erased when power is turned off.

Serial port - The connector for a peripheral device which uses data that is transmitted sequentially, one bit at a time, over a single wire or channel.

Server (file server) - See LAN

Software - Programs; sets of instructions that tell the computer what to do.

Spooler - A built-in feature of applications software, a separate program, or a separate device which provides a memory (RAM) buffer to hold information from the computer for sending to a slower device such as a printer. This enables the computer to be used for another task while the printer is in operation.

Sysop (Jargon) - System operator. The person who manages the operation of a bulletin board system (BBS).

Wysiwyg (Jargon) - "What you see is what you get."

Suggested Resources

Books

Bates, William. *The Computer Cookbook.* Garden City: Quantum Press, 1984.

Bork, Alfred. *Learning With Personal Computers.* New York, NY: Harper & Row Publishers, 1987.

Coburn, Peter, and others. *Practical Guide to Computers in Education.* Don Mills, Ont.: Addison-Wesley, 1985.

Daiute, Collette. *Writing and Computers.* Don Mills, Ont.: Addison-Wesley, 1985.

Geoffrion, Leo D. and Geoffrion, Olga P. *Computers and Reading Instruction.* Don Mills, Ont.: Addison-Wesley, 1983.

Moursund, David. *Computers and Problem Solving: A Workshop for Educators.* Eugene, Ore.: University of Oregon, 1988.

Solomon, Cynthia. *Computer Environment for Children - A Reflection on Theories of Learning and Education.* Cambridge, Mass.: M.I.T. Press, 1986.

Thomas, Rick. *Classworks: Appleworks for the Classroom.* Eugene, Ore.: University of Oregon, 1988.

Turkle, Sherry. *The Second Self: Computers and the Human Spirit.* New York, NY: Simon and Schuster, 1984.

Periodicals

Classroom Computer Learning
2451 East River Road
Dayton, Ohio 45439

Closing the Gap
Box 68
Henderson, Minnesota 56044

Computers in Education
Mooreshead Publications Ltd.
1300 Don Mills Road, North York,
Toronto, Ontario M3B 3M8

Computing Teacher
University of Oregon
1787 Agate Street
Eugene, Oregon 97403

Electronic Learning
Scholastic
351 Garver Road
Box 2700
Monroe, Ohio 45050-2700

Logo Exchange
University of Oregon
1787 Agate Street
Eugene, Oregon 97403

Teacher and Computers
Scholastic
351 Garver Road
Box 2700
Monroe, Ohio 45050-2700

Writing Notebook - Creative Word Processing in the Classroom
The Writing Notebook
P.O. Box 79
Mendocino, California 95460

Articles

Rodrigues, Dawn and Rodrigues, Raymond J. "Teaching Writing With a Word Processor, Grades, 7-13" *National Council of Teachers of English,* 1986.

Bulletins

Computers in Elementary Education. A Discussion/Directional Paper. Alberta Education, 1987.

Visions 2000. A Vision of Educational Technology in Alberta by the Year 2000. Alberta Education, 1987.

Other ACCESS NETWORK videotape programs

The ACCESS Academy in Microcomputers
20 x 60:00 videotape programs
Producer: ACCESS NETWORK
Audience level: Adult

Bits and Bytes
12 x 30:00
Producer: TV Ontario
Audience level: Adult

Computer Literacy
3 x 10:00 programs
Producer: ACCESS NETWORK
Audience level: Upper elementary grades

Demonstration of Authorized Microcomputer Courseware - Mathematics
7 x 60:00 videotape programs
Producer: ACCESS NETWORK
Audience level: Adult (teacher inservice)

The New Literacy
26 x 30:00 programs
Producer: Corporation of Community
College Television
Audience level: Adult

Octo-Puce
12 x 30:00 videotapes (in French)
Producer: Ministère de l'Education du Québec and Ontario

Puceron
20 x 5:00 - 8:00 videotape programs (in French)
Producer: TVOntario and Ministère de l'Education du Québec
Audience level: Junior high-senior high school

All of the above programs are available to educators in Alberta from the ACCESS NETWORK Media Resource Centre. Outside of Alberta, contact the producer of the program for information.

Getting the Most From a Video Presentation

An educational television program can be an effective and stimulating learning resource. Because of its ability to convey information and meaning through scenes and sounds, television is one of the most effective tools at your disposal. Many educators have found that the effectiveness of video programming can be enhanced in the following ways:

1. Use the **stop** and **pause** buttons frequently to highlight program segments. This will help break the passive viewing habit created in viewers by commercial TV and focus their attention on *your* purpose for showing the program(s).
2. Use the **counter** to prepare for the viewing session. Set it to zero at the start of a program. This will help pinpoint the location of segments to be reviewed later. You can then create a log by jotting down the counter numbers that correspond to important segments.
3. Since educational television programs generally include more material than can be digested in a single viewing, show the program in its entirety once and then, after clarifying any difficulties and reviewing specific learning objectives, show selected portions a second, even a third, time. Again, the stop and pause buttons can be used to allow viewers to take notes–or focus attention on a particular item of importance.
4. Television programs consist of **both** audio and video signals, and viewers often need to be stimulated in order to derive maximum information from both. During the second screening of a program segment, you can stimulate the development of viewing and listening skills by showing the picture but turning off the sound and asking for recall of audio information. Alternatively, leave the sound on but eliminate the picture.
5. Both for viewing comfort and for note-taking convenience, TV should not be viewed in a dark room. However, light can also be a problem, so the television set should be located to avoid window reflection on the screen. To eliminate ceiling-light reflection, tilt the set forward slightly.
6. Adjust the controls of the TV set to ensure good color balance, adequate brightness, and contrast.
7. In some cases, it is useful to have tapes and equipment available for independent viewing by individuals.

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